FAQ'S

STORM DISASTER OF SEPTEMBER 13, 2006

Handout for Special Town Meeting
Town of Highland, Indiana
October 30, 2006

Why did it take so long for the Town Council to hold this meeting?

The Town Council determined it would schedule a town meeting after sufficient information had been collected to enable a factual presentation and accurate response to questions.

What happened?

Strong thunderstorms on the back side of a slow moving low pressure system produced torrential rainfall on Wednesday, September 13, 2006 across the northern portions of Lake County, Indiana. The rain was intense and concentrated. Over a 24 hour period from 12th to September 13, rain gauges reported:

- 3.79 inches on the west side of Highland at Wicker Park Drive and River Drive;
- 4.06 inches on the west side of Highland at Lincoln Street and Parkway Drive;
- 5.31 inches in the central portion of Highland at the north end of 5th Street;
- 6.56 inches in the central portion of Highland at the west end of Georgetown Dr.;
- 6.58 inches in the central portion of Highland at Condit Street and 4th Street;
- 7.50 inches on the east side of Highland at LaPorte St and Johnston St.;
- 7.94 inches on the east side of Highland at Martha and Grace Street;

Based on the average of these numbers and on continuously recorded rain gauge information for the Hart Ditch in Dyer, the U.S. Army Corps of Engineers estimated this amount of precipitation was about a 600-year event; an event that had a statistical probability of occurring once every 600 years. On the east side of Highland, rainfall was substantially greater than the average used to determine the 600-year event.

As of October 13th, 1,789 housing units in Highland were reported to have water damage from flooding, sewer backup and/or hydrostatic pressure, including 163 units with structural damage

How do Highland's storm drainage systems work?

- South of Ridge Road, Highland's storm drainage systems, including the Spring Ditch, discharge by gravity to the Cady Marsh Ditch then to the Hart Ditch and then to the Little Calumet River. These ditches drain a large watershed that includes portions of Griffith, Munster, Schererville, Dyer and unincorporated Lake County. Wicker Park Golf Course serves as a detention site for storm water enroute to the Little Calumet River when Hart Ditch overflows near the Park.

- North of Ridge Road, Highland's storm drainage systems flow to pump stations located on the south side of the Little Calumet River at 81st Street, 5th Street and North Drive. These Pump Stations lift the storm water into the Little Calumet River.

What caused flood damage?

Flood damage was caused by the inability of Highland's interior drainage systems (storm water pipes, ditches and detention facilities) to accommodate the exceptionally large volume of rainfall.

Older storm drainage piping systems in the U.S. were usually designed to accommodate 5 to 10-year frequency storm events. Systems constructed in more recent years normally include storm water detention facilities designed to accommodate 100-year frequency storm events. The heaviest amount of rain in Highland fell in older sections of town where there are few storm water detention facilities available. Almost all of the rain that fell on September 13, 2006 turned into runoff because Highland's soils were saturated from rain that fell on previous days.

South of Ridge Road, storm sewers generally discharge by gravity to the Cady Marsh Ditch, the Spring Ditch and the Hart Ditch. When these ditches reached flood stage, the storm sewers couldn't discharge and streets became flooded. North of Ridge Road, storm sewers discharge to pump stations that lift water into the Little Calumet River. Flooding occurred on the north side of town when storm flows exceeded pump station capacity. Debris blocked storm sewer inlets contributed to flood damage.

What caused basement foundation damage?

Groundwater hydrostatic pressure damaged basement foundations as a result of rainfall over the previous four days that had saturated Highland's soils.

What caused sewer back-up damage?

Infiltration from saturated ground and inflow from basement foundation drains overloaded sanitary sewers and caused them to backup into basements.

Did damage result from failure of the flood control project along the Little Calumet River?

No. The Little Calumet River did not reach flood stage. Although the flood control project is still under construction, most of Highland is presently protected from river flooding by levee sections that have been completed along the south side of the river from Cline Avenue to Indianapolis Boulevard. A small section west of Kennedy Avenue and the levee system from Indianapolis Boulevard to the Illinois border is scheduled to be complete by 2009.

Did damage result from failure to operate pumps?

One of three pumps at the existing North Drive Pump Station ceased pumping for about 30 minutes due to the tripping of an electrical circuit breaker. Power was restored to this pump by re-setting the breaker. Two additional pumps, provided by Lake County, were installed at the North Drive Pump Station, to increase pumping capacity. These pumps remained monitored and working until the flood water had been pumped out of the northeast side of town. A new pump station is presently under construction at North Drive that will increase pumping capacity to accommodate a 100-year frequency event. The new North Drive Pump Station is expected to be substantially complete in January 2007.

Some homes near the Cady Marsh Ditch were taken out of the designated flood hazard area January 29, 2004. Why did these homes experience flood damage?

The Cady Marsh Ditch flood hazard area was re-evaluated by an engineering hydraulic model that predicted areas that would incur flood damage during a 100-year frequency storm event; an event that has a statistical probability of occurring once every one hundred years. Precipitation from the storm of September 13th was about a 600-year event, a much larger amount of rainfall.

How will the Griffith Cady Marsh Ditch Relief Sewer Project benefit Highland?

This project will intercept some of the storm water that flows into Cady Marsh Ditch from the east and direct it north to the Little Calumet River. The Highland Sanitary District is contributing $500,000 to this

project at $50,000 per year in exchange for benefit to be derived from reducing the storm water that would otherwise flow through Highland. This project was placed in operation September 20, 2006.

Why did sanitary sewers back-up?

Infiltration and inflow caused sanitary sewers to backup. Infiltration/inflow is the entry of surface water and groundwater into a wastewater collection system, causing hydraulic overloading of the system. An uncovered sanitary sewer manhole was reported at the intersection of Kennedy Avenue and 45th Street. Water can enter the sanitary sewer system through leaky manholes and pipe joints and from house foundation drain sump pumps that are directly connected to sanitary sewers. Infiltration/inflow can result in surcharging of manholes, basement backups, overflow of sewage from lift station wet wells and overloading of the treatment processes at the wastewater treatment plant.

We heard 911 calls on scanners reporting pump alarms. Are there recordings of 911 calls we can listen to?

An inquiry to Police Dispatch disclosed no 911 calls were received reporting pump alarms. Only requests for assistance were received. Some callers said, "Turn the pumps on". The telephone recording equipment on police calls was inoperative from August 31, 2006 to September 22, 2006. The problem was resolved by resetting the equipment. It has been routinely monitored since that time and has continued to operate as designed. Radio traffic on the public works frequency is not recorded. A proposal for new, updated recording equipment capable of recording police, fire and public works radio traffic has been sought.

We need to better understand how the pumps operate. Why did pump alarms go off?

Pumps come on automatically when water levels rise in wet wells. Alarms at pump stations activate and report at Police Dispatch when there is a high water condition in the wet wells and for a variety of other conditions such as power outages, intrusions, station flooding, pump failure, etc. A pump station can alarm on high water level in the wet well, particularly during an exceptionally heavy rainfall event, while the pumps themselves remain operational. Based on reports from Public Works personnel who investigated the alarms, no pump failure alarms occurred.

Are there records for pumps?

Continuous flow monitoring records are maintained for the two pump stations that lift sanitary sewerage from Highland to Hammond. The records show the pumps were continuously operated, the flow volume and a meter reading that is the basis of Hammond's charges for wastewater treatment. There are no flow monitoring records for storm water pumps.

Was pumping of sanitary sewerage flow from Highland to Hammond decreased?

No. However, two days after the storm event Hammond Sanitary District officials articulated concern about flows from Whiting and Highland overloading the Hammond Wastewater Treatment Plant.

What is Highland doing to reduce infiltration/inflow in its sanitary sewer system?

The Sanitary District's on-going sewer maintenance endeavors include:

- Televising the system to identify sewer conditions, sources of obstruction, infiltration and inflow;
- Replacing sewer lines that are in poor condition; relining of cracked sewer lines; repairing and/or replacing manholes that have cracks; raising the elevation of manholes located in low lying areas; smoke testing to identify and enforce disconnection of downspouts from the sanitary system;
- Inspecting new construction to assure increased storm water flow will be detained on site and that buildings are properly connected to the sewer systems.

- Offering grants for a portion of the costs to reimburse property owners ordered to disconnect foundation drain sump pumps, downspouts and storm water drains from the sanitary sewer system in neighborhoods where storm sewers are available.
- Constructing new storm sewers in the public right-of-way where required to accept separated drainage in neighborhoods where storm sewers are not available.

Why did we have flooding and sewer backup after the storm event of April 16, 2006?

Rainfall, infiltration and inflow from this storm event exceeded the capacity of the sewer systems as well. U.S. Weather Service rainfall information is only available on-line for the last 31 days; after then it is archived. We have not as of yet retrieved rainfall data for the April 16 event.

Why did the streets flood after the October 2, 2006 storm event?

This was a short duration high intensity rainfall accompanied by high winds, power outages and blow down. During the most intense portion of this event, from 10:30 PM to 11:15PM, there was 1.24" of rain. A principal cause of street flooding after this storm was debris-covered catch basins.

Has inspection and cleaning of sewer lines been sufficient?

There has been no documented evidence of obstructed underground storm or sanitary sewer lines. Storm sewer inlet drains get blocked by persons placing yard waste and debris in streets, particularly on trash collection days. The Public Works Department operates two street sweepers to prevent debris from clogging inlet drains. Since Highland has about 4,500 inlet drains (catch basins), it's virtually impossible to keep <u>all</u> drains clear at <u>all</u> times. We ask our citizens for their cooperation to help keep these inlet drain covers free of debris as much as possible.

What has been done to help persons recover from this disaster?

<u>September 13, 2006</u>:

The Highland Flood Disaster Plan was activated at 11 AM on when an Emergency Operation Center (EOC) was established at the Central Fire Station with members of the Town Council, senior staff members of operating departments and a representative of the School Town. The Fire Chief assumed Incident Commander responsibilities. The Public Works Department activated its flood disaster response plan; setting in motion warning systems, traffic control devices, clearing debris from storm drains and monitoring pump stations. The Fire Department began to rescue and to evacuate victims. The Park & Recreation Department transported evacuees and sheltered them at the Lincoln Center. The Police Department secured flooded areas. The School Town was asked to shelter students in place at the schools. The Building Department was asked to inspect structures that had structural damage. The town manager assumed public information officer responsibilities by providing periodic news releases to the local media and responding to numerous inquiries from Chicago media.

Before any federal government disaster assistance is initiated, local governments must request assistance from their county and state governments. County and state governments must provide available relief before seeking federal assistance. After an assessment of the rainfall intensity and volume of water in flooded areas, the Council President signed a Disaster Declaration. The declaration indicated an emergency response was beyond the capability of the Town of Highland's resources and requested disaster assistance from Lake County. Shortly thereafter, Lake County declared a disaster and requested assistance from the State of Indiana. Public safety, public works and emergency assistance personnel were dispatched to assist with the first response from Lake County, Hammond, Lake Ridge, Munster, NIPSCO, the State of Indiana and the U.S. Army Corps of Engineers. Meetings at the EOC were convened at about two hour intervals to assess conditions and to adjust endeavors of the first responders.

At about 3 PM (when the Hart Ditch was predicted to crest by the U.S. Weather Service) storm water began flowing over U.S. Route 41 (Indianapolis Boulevard). US-41 was closed at Ridge Road and at the north side of I-80/94 to enable installation of a temporary sand dike to protect Wicker Park Manor Subdivision from a reoccurrence of flood damage of the character that occurred in 1990.

About 100 persons required evacuation by public safety personnel. Temporary shelter was provided to about 30 persons at the Lincoln Center. School buses did not operate due to the high water in streets. Highland High School discharged its students at the normal time, but its students and teachers found transportation away from the school to be quite difficult due to the flooded streets. Students of the Middle School and the elementary schools were sheltered-in-place until parents could pick them up. The schools were cleared by about 6 PM. The EOC ceased operation at 9 PM after flood waters had been pumped out of most areas of town, except for low lying areas. By that time, all persons evacuated to the Lincoln Center found alternative housing; there were no reports of death or personal injury.

Thursday, September 14, 2006:

J. Eric Dietz, Director of the Indiana Department of Homeland Security, and members of his staff toured Highland and the communities affected by the rain event. Dietz reported a declaration of state emergency was underway and building inspection assistance services would be provided to the municipalities. Dietz said a preliminary damage assessment would be conducted jointly with FEMA. Dietz reported the assessment must conclude damages more than $7 million have occurred with structural damage in at least 200 housing units.

North Township distributed flyers in flood affected communities of the Township giving notice of a phone number where persons could apply for a $50 voucher to help acquire clean-up supplies.

To facilitate the damage assessment, local media representatives were asked to encourage persons to call their city or town halls to be identified on a list indicating the character of their damage, names, addresses and phone numbers. Residents were asked to place damaged property and other debris near the street for collection.

Friday, September 15, 2006:

Highland building inspectors, assisted by personnel from the Indiana Department of Homeland Security and other municipalities, began to ascertain the character of structural damage.

The Highland Public Works Department sprayed mosquito insecticide to mitigate breeding conditions favorable to the spread of West Nile virus.

Governor Mitch Daniels conducted a personal tour of Highland. Governor Daniels spoke to residents impacted by the flood and was briefed of the situation, including complaints of poor insurance company reaction to the damages experienced in the area.

The Lake County Community Economic Development Department announced it would accept applications from low and moderate income homeowners for emergency grants up to $4,000 for clean-up activities.

Saturday, September 16, 2006:

The American Red Cross established a Service Center at the Lincoln Center.

Personnel and equipment available from the town's refuse collection contractor supplemented by staff and equipment of the Public Works department began to collect flood damaged property and debris. A

call center continued to be staffed at town hall for responding to questions and compiling a list of locations and phone numbers of persons reporting damaged property.

Sunday, September 17, 2006:

Over 70 personnel and equipment from the City of East Chicago assisted the Public Works Department with the collection of flood damaged property and debris.

Monday, September 18, 2006 through Friday, September 23, 2006:

Representatives of North Township, the Lake County Community Economic Development Department, and the Indiana Department of Insurance joined representatives of the Red Cross at the Lincoln Center to coordinate disaster relief services at one location.

Personnel from the Indiana Department of Homeland Security, FEMA and the Small Business Administration (SBA) arrived to initiate the preliminary damage assessment. Five assessment teams were dispatched throughout Lake County; one each to Highland, Griffith, Gary, Hammond and East Chicago. The assessment concluded Friday, September 23, 2006.

The Town of Munster assisted the Public Works Department with staffing the call center at Town Hall and with the collection of flood damaged property and debris.

The Highland Police Department increased patrols throughout town to assist with the removal of flood damaged property, ensure the safety of citizens from scavengers and others who are attempting to take advantage of those who were harmed by the storm.

Tuesday, September 26, 2006:

Governor Daniels requested federal disaster status from President Bush by formal letter through the FEMA Region V office in Chicago.

Friday, September 29, 2006:

By this date, 1,685 tons of flood related debris had been removed from the streets of Highland; an amount over seven (7) times the amount of trash picked up in an average week (240 tons). This quantity excludes debris picked by the City of East Chicago and the Town of Munster.

Saturday, September 30, 2006:

The Town Council adopted an ordinance waiving or refunding fees associated with building permits and inspections for those affected from the flood event.

Monday, October 2, 2006:

Another storm event with high winds caused power outages affecting sump pumps and lift stations and left an excessive amount of damaged trees, branches and leaves that required collection by the Public Works Department.

Tuesday, October 3, 2006:

The Lake County Health Department, at the request of the Griffith Clerk-Treasurer, provided free tetanus shots at the Lincoln Center for persons who may have had an exposure in removing flood damaged property.

Friday, October 6, 2006:

President George Bush declared a major disaster exists in the State of Indiana, particularly in Lake and Vanderburgh Counties. The merging of damage estimates from the same storm event enabled the state to achieve the minimum eligibility threshold for federal assistance.

Monday, October 9, 2006:

Outreach representatives from FEMA began to distribute flyers and information regarding FEMA/SBA assistance and registration procedures. This information was distributed through schools and churches. A clerk in the Highland Building Department began making phone calls to personally notify persons of the registration procedures.

Wednesday, October 11, 2006:

The Lake County Solid Waste District sponsored a Household Waste Collection in the parking lot adjacent to the Highland Public Works facility.

Friday, October 14, 2006:

FEMA opened a Disaster Recover Center at the Lincoln Center together with representatives of the Small Business Administration (SBA) and the Internal Revenue Service (IRS). Flood victims were urged to register online at http://www.fema.gov or to call 1-800-621-FEMA (3362). The Disaster Recover Center is available for personal assistance and counseling related to the SBA loan applications and appealing initial determinations regarding eligibility and the amount of SBA loans and FEMA grants.

The IRS offers special tax relief for flood victims in a disaster area declared by the President. An unreimbursed loss may be deductible on tax returns for the year the casualty occurred or by filing an amended return for the year before the disaster. Deadlines may be postponed to provide extra time to file returns and pay federal income taxes. IRS Publication 547, Casualties, Disasters and Thefts, provides more information how to claim losses. Form 4684, Casualties and Thefts, gives step-by-step instructions how to figure a deductible loss. Tax questions can often be answered by reading tax publications and related forms. If assistance is needed, call the IRS at 1-800-829-1040.

Tuesday, October 17, 2006:

Larry Summers, FEMA state-wide disaster coordinating officer, and J. Eric Dietz, Director of the Indiana Department of Homeland Security, met with local government officials to assess disaster recovery efforts. They reported 3,000 homes were estimated to be damaged in the area, but just over half that number had registered for assistance. Flood victims have until December 5, 2006 to apply for benefits and low interest loans from the SBA.

- SBA loans are available at 3.125% annual interest for up to $200,000 for homeowners and up to $40,000 for renters to repair homes or replace personal property. Business loans are available at 4% annual interest for up to $1.5 million for economic injury.

- Persons who aren't able to repay an SBA loan are eligible for FEMA grants up to $5,600 for minor repairs or up $11,300 for major repairs. If a home is totally destroyed, $28,000 is the maximum grant.

In response to a question, "Could local governments recover their expense for the emergency response, relief and repair endeavors?", Dietz reported there are two thresholds that must be surpassed before local governments could be eligible for up to 75% cost recovery under the FEMA Public Assistance Program: (1) state-wide expenditures must exceed $7 million; and (2) Lake County local government expenditures

must exceed $3.05 per capita. Local officials were told to document and submit all expenditures incurred and estimates to repair property damaged; then let the state and federal officials determine whether they will be eligible for reimbursement.

In response to a question, "Could FEMA assist with costs of engineering services and construction of improvements to mitigate reoccurrence of damage caused by flooding, sewer backup and ground water pressure, Janet Crider (State Hazard Mitigation Officer) reported Lake County is presently eligible for risk reduction analysis studies provided the scope of the analysis is regional in character, perhaps by watershed.

Wednesday, October 19, 2006:

The threshold for Lake County and its municipalities to become eligible for reimbursement of its disaster assistance costs is expected to be $1,477,921. Highland is documenting its costs incurred and estimates for repairing damaged property. Lake County local government officials are encouraged to document and submit their costs and damage estimates, as well.

Monday, October 23, 2006:

A survey was distributed to all of Highland's utility customers asking for more explicit information about the character of flood damage.

The Town Council approved a scope of services and a request for proposals for an engineering study of Highland's storm and sanitary sewer systems. This engineering study will determine whether completion of work in progress, as of September 13, 2006, on current sanitary and storm sewer projects would have materially mitigated flooding and property damage had they been completed prior to the September 2006 storm event. The Engineer will analyze results of the survey disclosing persons who've reported property damage resulting from the September 2006 storm event and submit a report presenting recommended staffing levels for system maintenance procedures based upon productivity standards; measures that should be the responsibility of property owners; preliminary plans and cost estimates for sanitary and storm system improvements that would prevent flooding and sewer backup for 100-year and 200-year frequency storm events.

Friday, October 29, 2006:

The North Township Trustee Office of Frank Mrvan reported the Township has assisted 321 flood victim clients to date at a $25,956 cost: consisting of $15,250 for household assistance; $9,237 for food; $955 for clothing and $514 for medical expenses. Call 852-3280 for more information.

Milan Grozdanich, Executive Director, Lake County Community Economic Development Department reported 230 applications were received for emergency flood assistance grants up to $4,000. $650,000 has been reprogrammed for emergency assistance grants. Applications are still being accepted for very low-income homeowners residing in Highland, Griffith and unincorporated Calumet Township. Call 755-3225 for more information.

Gordon Johnson, Executive Director, American Red Cross of Northwest Indiana, reported the Red Cross assisted 1,246 people primarily from the communities of East Chicago, Hammond, Highland, Gary, and Griffith. On October 12, the Service Center closed in Highland and reopened at the Northwest Indiana Red Cross headquarters in Merrillville. Operations continue at the Merrillville Chapter offices.

The Red Cross Disaster Relief Operation was carried out by 159 staff and volunteers. Victim assistance has consisted of: 798 meals; 13,099 beverages and snacks; 1,555 cleanup kits; 596 mental health contacts; 141 health services contacts and 324 home visits. The operation has cost $434,361; $403,037 in direct financial and material assistance to flood victims. The local chapter has received almost $87,000 from

generous businesses, corporations, churches and donors to cover approximately 20% of the cost of the operations to date. The Red Cross Disaster Relief Operation is almost completely transitioned to FEMA; although the local chapter is continuing to assist a few people in transitional housing until their FEMA benefits kick in.

The local Red Cross Chapter is now involved in a Long Term Recovery Committee effort with community and faith-based organizations that are active in providing disaster relief. The focus is on people who have received the maximum benefits for which they are eligible from Red Cross and FEMA, and whose received benefits are insufficient to meet the need to fix their homes. The primary population are the elderly, people with special needs, people with disabilities, and single parent households with children. Involved organizations presently include the Lake Area United Way, FEMA, INVOAD, Indiana-Kentucky Conference of the United Church of Christ, Northwest Community Action/211, the Society of St. Vincent DePaul, Catholic Charities, Trinity United Church of Christ Gary, Highland Immanuel United Church of Christ, St. James Church of Highland and the United Methodist Committee on Relief (UMCORE). Call 756-5360 for more information.

The FEMA Disaster Recovery Center reported 3,125 persons from Lake County have registered for assistance as of October 26th, including 1,058 from Highland. The total amount of grants disbursed was $5,346,823 as of October 24, 2006. Applications for SBA loans have totaled 202 as of October 24, 2006. Of these, 28 loans have been approved in the amount of $898,600.

The FEMA recovery center will be closing at the Lincoln Center on November 3, 2006. Continued FEMA assistance can be requested by registering on-line at http://www.fema.gov or calling 1-800-621-3362 (FEMA).

What is being done to plan for future disasters to protect life and property?

1. **Tabulate results of a survey to further define the location and character of flood, sewer back-up and hydrostatic pressure property damage.** Town officials intend to ask Lake County Surveyor George VanTil to incorporate the survey data into a Geographic Information System (GIS) map to facilitate the engineering analysis and formulation of recommendations for sewer system improvements.

2. **Retain an engineer for an independent study of Highland's sewer systems including preliminary plans and cost estimates for sewer system improvements that would prevent flooding and sewer backup for up to 100-year and 200-year frequency storm events.** An engineering firm is expected to be selected and given notice to proceed by November 22, 2006. The first draft of the report will be submitted by May 1, 2007.

3. **Seek accreditation from the National Flood Insurance Program's (NFIP) Community Rating System to enable Highland property owners to receive discounted flood insurance premiums.** The National Flood Insurance Program's (NFIP) Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: (1) reduce flood losses; (2) facilitate accurate insurance rating; and (3) promote the awareness of flood insurance.

4. **Consider an ordinance that would prohibit placement of yard waste debris in streets.** Aggressive enforcement of an ordinance of this character with stiff penalties for non-compliance could help to keep storm inlet drains free of debris.

5. **Consider an ordinance that would establish regulations and a permit requirement for placing fill on property to mitigate storm water flooding on adjacent property.** This ordinance would enable code enforcement officials to intervene when property owners attempt to divert storm water to a neighbor's property.

6. **Enhance disaster plans for emergency response, recovery and restoration.**

   Local governments are expected to provide the first emergency response and to be fully self-sufficient for at least 72 hours after a disaster occurs. At a de-briefing meeting, "first responders" concluded the first 10 hours of the emergency response went well and consistent with the local disaster plan. Plans are needed, however, to support needs of families of emergency operations personnel (including shelter and school staff) who themselves may be disaster victims, perhaps by mutual aid agreements with "sister" agencies for peer-to-peer assistance. The inventory of fire department equipment available in the region for mutual aid is good; an equivalent inventory of public works equipment is needed with phone numbers of persons to call when the equipment might be needed in emergencies.

   Improvement is needed in communications; not only with disaster victims, but also with emergency operations staff. Informal communication networks worked better than the protocol prescribed in the Disaster Plan.

   To slow the spread of rumors and misinformation, briefings should occur at least every 4 hours for status reports on work-in-progress, services being offered, changes occurring and discussion of problems. Consideration should be given to staffing an emergency call center physically separated from and independent of police dispatchers and routine business operations at town hall.

   Periodic news releases were given to the local newspapers and local radio stations; but not all persons listen to the radio or subscribe to newspapers. Improved and redundant methods of timely communications with disaster victims are needed; perhaps by e-mail contact lists, television, a better publicized internet web site, a low frequency FM radio station and/or an emergency phone number answered by knowledgeable emergency operations personnel. Reverse 9-1-1 systems have proved impractical because they require too many out-going phone lines. The 2-1-1 Call Center, scheduled to commence operation on November 1, 2006, should provide better access to health and human service information by referring persons to local providers.

   There were complaints of long lines and coordination problems at the Lincoln Center, where the Red Cross, the Township and the County were providing early disaster relief. There appeared to be very little interagency coordination. Persons stood outside for hours on very hot days only to find they were ineligible for assistance. A phone and on-line registration and follow-up response system similar to that subsequently employed by FEMA would have worked better.

   The staff at town hall became quickly overwhelmed by offers to donate goods and services. Early on, the Red Cross decided not to accept donated goods, services or offers of temporary housing. Persons and businesses wishing to donate items were asked to contact the Chamber of Commerce who agreed to manage referrals to local charities that could more appropriately manage them. Faith-based relief providers elected to provide services independent of the Red Cross. A volunteer coordinator should be trained and assigned during a disaster to manage donations.

   The EOC should remain in operation after the initial response to manage recovery and a Volunteer Coordinator and the 2-1-1 Call Center should have representation at the EOC.